Chemical Engineering CBRT 16th July 2017
(FN)-09.30 to 11.30

1. Which one of the following is an example of amphoteric oxide?

   (a) CO_2

   (b) Na_2O

   (c) MgO

   (d) Al_2O_3

2. Which one of the following material is used for control rods in Uranium reactors?

   (a) Boron Steel

   (b) Antimony

   (c) Carbon Steel

   (d) Titanium

3. What is the frequency of the radiation with a wavelength of 10.6 μm, produced by $CO_2(g)$ laser?

   (a) $2.38 \times 10^{-13}\ Hz$

   (b) $2.83 \times 10^{-13}\ Hz$

   (c) $2.83 \times 10^{13}\ Hz$

   (d) $2.38 \times 10^{13}\ Hz$

4. What is the concentration of a solution of cane sugar ($C_{12}H_{22}O_{11}$) which is isotonic with a solution containing 9.0 g of urea $CO(NH_2)_2$?

(a) 34.2 g/l

(b) 51.3 g/l

(c) 25.6 g/l

(d) 17.1 g/l

5. A hydrocarbon contains 86 % carbon, 448 ml of the hydrocarbon weighs 1.68 g of STP. Then the hydrocarbon is

(a) $ALKENE$

(b) $ALKANE$

(c) $ALKYNE$

(d) $ARENE$

6. When a solution of a metal salt is treated with ammonia solution, a white precipitate is formed which is insoluble in excess of ammonia. When same solution is treated with $NaOH$, a white precipitate is formed which dissolves in excess of $NaOH$. The cation is

(a) Ag^{+}

(b) Hg^{2+}

(c) Pb^{2+}

(d) Cr^{3+}

7. What is the solubility product of lead iodide at $25^{\circ}C$? Its solubility at that temperature is $0.7\ g/\ l$, atomic weight of $Pb = 207.2$ and $I = 127$.

(a) 6.75×10^{-9}

(b) 13.5×10^{-9}

(c) 27.0×10^{-9}

(d) 30.0×10^{-9}

8. The diameter measured under various trials for a wire using a microscope were $0.205\ \mu m,\ \ 0.209\ \mu m$ and $0.198\ \mu m$. If the known diameter is $2.00 \times 10^{-7}\ m$, the percentage of error for an average measurement is

(a) 1.8 %

(b) 3.5 %

(c) 2.4 %

(d) 2.0 %

9. Which one of following is the correct sequence in decreasing order of the dielectric constants?

(a) Sulfuric acid > water > ethanol > decane

(b) Water >sulfuric acid > ethanol > decane

(c) Water >sulfuric acid > decane > ethanol

(d) Sulfuric acid > ethanol > water > decane

10. Which one of the following is having isotonic nuclei?

(a) ${}^{12}_{6}C,\ {}^{14}_{7}N,\ {}^{17}_{9}F$

(b) ${}^{12}_{6}C,\ {}^{15}_{7}N,\ {}^{17}_{9}F$

(c) ${}^{14}_{6}C,\ {}^{15}_{7}N,\ {}^{17}_{9}F$

(d) ${}^{14}_{6}C,\ {}^{14}_{7}N,\ {}^{19}_{9}F$

11. When a stream of electrons strikes a metal target, the resulting radiation is

(a) $\gamma -$ Rays

(b) Electron reemission

(c) $X -$ Rays

(d) Neutrons

12. What is the correct order of boiling points for the following hydrides?

(a) $H_2Te > H_2S > H_2O > H_2Se$

(b) $H_2O > H_2Te > H_2Se > H_2S$

(c) $H_2Te > H_2O > H_2S > H_2Se$

(d) $H_2O > H_2Se > H_2Te > H_2S$

13. 2-electron, 3-centered bond is found in

(a) H_3BO_3

(b) BCl_3

(c) BH_4^-

(d) $[Al_2(CH_3)_6]$

14. Which of the following pair of species is isoelectronic and isostructural?

(a) CO_2^{2-}, SO_3

(b) SO_3, NO_3^-

(c) ClO_3^-, CO_3^-

(d) NO_3^-, CO_3^{2-}

15. Which of the following molecule have highest percentage of p-character in the hybrid orbitals of the central atom?

(a) SF_6

(b) PCl_5

(c) $CHCl_3$

(d) XeF_4

16. The crystal structure of ice has

(a) Octahedral geometry

(b) Tetrahedral geometry

(c) Square planar geometry

(d) Trigonal bipyramidal geometry

17. If r_+ and r_- are ionic radii of A^+ and B^- respectively, the lattice energy of solid AB is proportional to

(a) $(r_+ + r_-)$

(b) $(r_+ + r_-)^{-1}$

(c) $(r_+ + r_-)^2$

(d) $(r_+ + r_-)^{-2}$

18. Consider the following reactions:

1. $F_2 + 2Cl^- \rightarrow 2\,F^- + Cl_2$
2. $I_2 + 2Br^- \rightarrow 2\,I^- + Br_2$
3. $Br_2 + 2I^- \rightarrow 2Br^- + I_2$
4. $2I^- + Cl_2 \rightarrow 2Cl^- + I_2$

Which of the above reactions will occur spontaneously?

(a) 1, 2 and 3

(b) 1, 3 and 4

(c) 1, 2 and 4

(d) 2, 3 and 4

19. Schottky defect in solids arises from:

1. An excess charge generation
2. A pair of holes formed due to absence of ions
3. Presence of interstitial electrons

(a) 1 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

20. Consider the following statements about chirality:

1. Molecules which are not super-imposable on their mirror images are chiral
2. Chiral molecule can have simple axis of symmetry
3. A carbon atom to which four different groups are attached is a chiral centre
4. A compound whose molecules are achiral exhibits optical activity

Which of the above statements are correct?

(a) 1 and 3

(b) 2 and 3

(c) 1 and 4

(d) 2 and 4

21. When X-ray diffraction pattern consists of sharply defined rings, the solid is

(a) Monocrystalline

(b) Amorphous

(c) Polycrystalline

(d) None of these

22. The number of atoms per unit cell in a simple cubic, FCC and BCC unit cells is, respectively

(a) 2, 1 and 4

(b) 1, 4 and 2

(c) 2, 4 and 1

(d) 1, 2 and 4

23. No Bragg reflection of X-rays from a crystal will be observed if d_{hkl} is smaller than

(a) $\frac{\lambda}{4}$

(b) $\frac{\lambda}{3}$

(c) $\frac{\lambda}{2}$

(d) λ

24. CaO and $NaCl$ have similar crystal structures and approximately same ionic radii. If U is the lattice energy of $NaCl$, the lattice energy of CaO is nearly

(a) $0.5U$

(b) U

(c) $2U$

(d) $4U$

25. For which of the following process is inter system crossing (ISC) essential?

(a) Chemiluminescence

(b) Fluorescence

(c) Phosphorescence

(d) Radioactive decays

26. Which of the following set of quantum numbers are possible?

1. $n = 3,\ l = 0,\ m = 0$ and $s = +\frac{1}{2}$
2. $n = 3,\ l = 1,\ m = -1$ and $s = -\frac{1}{2}$
3. $n = 2,\ l = 0,\ m = -1$ and $s = +\frac{1}{2}$
4. $n = 2,\ l = 1,\ m = 0$ and $s = +\frac{1}{2}$

(a) 1, 2 and 3

(b) 1, 3 and 4

(c) 1, 2 and 4

(d) 2, 3 and 4

27. The pH, at which the amino acid is in the dipolar form is known as:

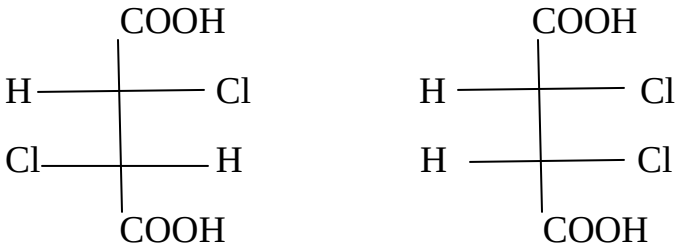
(a) Isoelectric point

(b) Isosbestic point

(c) Mutarotation

(d) Transition point

28. The following two isomers are:



(a) Enantiomers

(b) Mesomers

(c) Diastereomers

(d) Position isomers

29. Consider the following compounds:

1. CH_3OCH_3
2. C_2H_5OH
3. C_2H_5Cl
4. C_2H_6

Which of the above two compounds exhibit functional group isomerism?

(a) 1 and 2

(b) 2 and 3

(c) 3 and 4

(d) 1 and 4

30. Consider the following about propane:

1. Bond angle is 109.5°
2. Each carbon is sp^3 hybridized
3. It is combustible
4. It can be polymerized

Which of the above statements are correct?

(a) 1, 2 and 4

(b) 1, 3 and 4

(c) 2, 3 and 4

(d) 1, 2 and 3

31. Consider the following orders:

1. $NH_3 < PH_3 < AsH_3$ → Acidity
2. $Li^+ < Na^+ < K^+ < Cs^+$ → Ionic Radius
3. $Al_2O_3 < MgO < Na_2O < K_2O$ → Basicity
4. $Li < Be < B < C$ → 1st Ionisation Potential

Which of the above orders are correct?

(a) 1, 2 and 4 only

(b) 1, 3 and 4 only

(c) 2, 3 and 4 only

(d) 1, 2 and 3 only

32. Which one of the following is an amino acid?

(a) Succinic acid

(b) Maleic acid

(c) Glutamic acid

(d) Tartaric acid

33. On heating salicylic acid with acetic anhydride in presence of small quantity of concentrated H_2SO_4, results in the formation of a

(a) Dye

(b) Resin

(c) Drug

(d) Explosive

34. The rate of substitution in phenol is

(a) Same as benzene

(b) Less than benzene

(c) None of these

(d) Greater than benzene

35. In the production of soda ash by Solvay process, the by-product is

(a) $CaCl_2$

(b) NH_4Cl

(c) NH_3

(d) $NaOH$

36. During the manufacture of sulphuric acid, the temperature of molten sulphur is not increased beyond $160^{\circ}\,C$, as

(a) It is very corrosive at elevated temperature

(b) Its viscosity is not reduced on further heating (hence pressure drop on pumping it, cannot be further reduced)

(c) It decomposes on further increasing the temperature

(d) None of these

37. The chemical formula of a bone phosphate of lime is

(a) $Ca(PO_4)_2$

(b) $Ca_3(PO_4)_2$

(c) $Ca_2(PO_4)_2$

(d) $Ca(PO_3)_2$

38. Cement mainly contains

(a) CaO, SiO_2 and Al_2O_3

(b) CaO, MgO and Fe_2O_3

(c) CaO, MgO and K_2O

(d) CaO, SiO_4 and Fe_2O_3

39. Double contact double absorption process is used for manufacture of

(a) Sulfuric acid

(b) Nitric acid

(c) Phosphoric acid

(d) Hydrochloric acid

40. Electrostatic precipitation can be used for pollution control to remove

(a) SO_2

(b) Particulate matter

(c) NO_X

(d) CO and CO_2

41. Consider the following statements regarding petroleum:

1. It is the only liquid fuel in nature
2. Its various fractions are separated by fractional distillation
3. Its approximate composition is $C = 84\%,\ H = 15\%, N + S + O = 1\%$
4. It has higher thermal efficiency than diesel

Which of the above statements are correct?

(a) 1, 2 and 3

(b) 1, 2 and 4

(c) 1, 3 and 4

(d) 2, 3 and 4

42. Paraffins are desirable in lubricating oil as it has high

(a) Viscosity index

(b) Pour point

(c) Smoke point

(d) Octane number

43. Age of crude oil is indicated by:

1. Universal oil products factor
2. Carbon Preference Index

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

44. At what temperature is the extraction of liquid sulphur dioxide carried out from kerosene in order to improve the illuminating quality of kerosene?

(a) $14^{\circ}\ C$

(b) $4^{\circ}\ C$

(c) $-4^{\circ}\ C$

(d) $-14^{\circ}\ C$

45. Dittus-Boelter equation used for predicting the tube-side heat transfer coefficient is in the range of:

(a) Reynolds number $Re \leq 4000$

(b) Reynolds number $Re \leq 8000$

(c) Reynolds number $Re > 10{,}000$

(d) Reynolds number $Re > 5{,}000$

46. LMTD correction factor is used in the design of a shell and tube heat exchanger, to account for:

1. Mixed flow cases
2. Viscosity variations of the working fluids due to temperature change
3. The presence of baffles

(a) 1 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

47. Which one of the following number is a measure to determine the relative strength of conduction and convection?

(a) Rayleigh number

(b) Reynolds number

(c) Peclet number

(d) Sherwood number

48. When heat transfer takes place through a series of flat plates, the overall resistance is the

(a) Logarithmic mean of resistances

(b) Average of resistances

(c) Geometric mean of resistances

(d) Sum of the resistances

49. Which one of the following statements is correct?

(a) Both Peltier and Joule effects are reversible

(b) Both Peltier and Joule effects are irreversible

(c) Joule effect is reversible whereas Peltier effect is irreversible

(d) Joule effect is irreversible whereas Peltier effect is reversible

50. Which one of the following medium is required for the transfer of heat by electromagnetic waves or photons?

(a) Solid

(b) Liquid

(c) No medium

(d) Gases

51. How much heat will be evolved when $2.7g$ of aluminium reacts with stoichiometric amount of Fe_2O_3?

$$2Al + Fe_2O_3 \rightarrow 2Fe + Al_2O_3, \quad \Delta H^\circ = -852\ kJ$$

(a) $-42.6\ kJ$

(b) $-4.26\ kJ$

(c) $4.26\ kJ$

(d) $42.6\ kJ$

52. Fins are used in heat transfer equipment to:

(a) Increase heat transfer area

(b) Decrease heat transfer area

(c) Decrease mechanical strength

(d) Support the heating system

53. Which of the following mixtures forms an azeotrope at atmospheric pressure?

1. Water-alcohol
2. Methyl alcohol-acetone
3. Benzene-Toluene
4. Butyl acetate-water

(a) 1, 2 and 3

(b) 1, 3 and 4

(c) 1, 2 and 4

(d) 2, 3 and 4

54. The heat in a unit of time produced when a steady state current I passes through an electrical conductor having resistance R is

(a) IR

(b) I^2R

(c) IR^2

(d) I^2R^2

55. Lewis number is the ratio of

(a) Thermal diffusivity to mass diffusivity

(b) Mass diffusivity to thermal diffusivity

(c) Mass diffusivity to momentum diffusivity

(d) Momentum diffusivity to thermal diffusivity

56. Which one of the following is the dynamic characteristic of an instrument?

(a) Reproducibility

(b) Sensitivity

(c) Dead zone

(d) Fidelity

57. When the power necessary to alter the controlled output is supplied primarily from sources other than the command input the feedback control system is called

(a) Active

(b) Positive

(c) Hybrid

(d) Passive

58. In Aircraft, redundant sensors are used for

1. Controlling the speed
2. Controlling the flow of fuel
3. Reliability

(a) 1 only

(b) 2 only

(c) 3 only

(d) 1, 2 and 3

59. Efficiency of Carnot's engine is 100 %, when

(a) Sink is placed at $0^{\circ}\,C$

(b) Sink is placed at $0\ K$

(c) Source is placed at $100^{\circ}\,C$

(d) Source is placed at $100\ K$

60. What is equilibrium constant at $25^{\circ}C$ and $\Delta\, G^{\circ} = -262\ kJ$ for the reaction $H_{2\,(g)} + Cl_{2\,(g)} \rightleftharpoons 2\ HCl_{(g)}$?

(a) 45.9

(b) 45.9×10^{8}

(c) 8.3

(d) 8.3×10^{45}

61. What is the standard entropy of bromine, at $25^{\circ}C$, $\Delta G^{\circ} = -62{,}000\ cal$ and $\Delta H^{\circ} = -66{,}000\ cal$ for the reaction $Pb_{(s)} + Br_{2\,(l)} \longrightarrow PbBr_{2\,(s)}$ with the given standard entropy values of $PbBr_2 = 38.6\ e.u$ and $Pb = 15.5\ e.u$?

(a) $-1.342\ e.u$

(b) $-13.42\ e.u$

(c) $3.652\ e.u$

(d) $36.52\ e.u$

62. A heat engine has efficiency $\frac{1}{6}$. When temperature of sink is reduced by $62^{\circ}C$, its efficiency is doubled. What is the temperature of the source?

(a) $37^{\circ}C$

(b) $99^{\circ}C$

(c) $62^{\circ}C$

(d) $124^{\circ}C$

63. The vapour pressures of pure benzene and solution of a solute in benzene at $25^{\circ}C$ are $639.7\ mm$ of Hg and $631.9\ mm$ of Hg. What is the molality of the solution?

(a) $0.468\ m$

(b) $0.312\ m$

(c) $0.156\ m$

(d) $0.078\ m$

64. What is the heat of reaction at $78^{\circ}C$ with heat of combustion values, $C_2H_4 = 337.2\ kcal,\ H_2 = 68.3\ kcal$ and $C_2H_6 = 372.8\ kcal$ for the reaction $C_2H_{4\,(g)} + H_{2\,(g)} \rightleftharpoons C_2H_{6\,(g)}$?

(a) $-32.7\ kcal$

(b) $32.7\ kcal$

(c) $-3.27\ kcal$

(d) $3.27\ kcal$

65. For a spontaneous reaction, free energy ΔG, equilibrium constant K and E° cell will respectively be:

(a) Negative, Greater than one and Positive

(b) Positive, Greater than one and Positive

(c) Negative, Lesser than one and Negative

(d) Positive, Lesser than one and Negative

66. Which one of the following is an extensive property?

(a) Free energy

(b) Chemical potential

(c) Refractive index

(d) Specific heat

67. Which of the following relations are correct?

1. $\left(\frac{\partial G}{\partial T}\right)_P = S$
2. $\left(\frac{\partial G}{\partial P}\right)_T = V$
3. $\left(\frac{\partial S}{\partial V}\right)_T = \left(\frac{\partial P}{\partial T}\right)_V$
4. $\left(\frac{\partial \left(\frac{G}{T}\right)}{\partial T}\right)_P = -\frac{H}{T^2}$

(a) 2, 3 and 4

(b) 1, 2 and 3

(c) 1, 2 and 4

(d) 1, 3 and 4

68. What is the relation between K_p and K_c for the reaction?

$$2SO_{2\,(g)} + O_{2\,(g)} \rightleftharpoons 2SO_{3\,(g)}$$

(a) $K_p < K_c$

(b) $K_p > K_c$

(c) $K_p = K_c$

(d) $K_p = K_c = 0$

69. An auto-thermal reactor is

(a) Suitable for a second order reaction

(b) Suitable for a reversible reaction

(c) Completely self-supporting in its thermal energy requirements

(d) Isothermal in nature

70. With decrease in temperature, the equilibrium conversion of a reversible endothermic reaction:

(a) Increases

(b) Decreases

(c) Remains unaffected

(d) Increases linearly with temperature

71. Consider the following results for the thermal decomposition of acetaldehyde in a closed vessel.

$Time\ (s)$	43	243	480
$\Delta p\ (mm)$	35	135	194

What is the order of the reaction?

(a) Zero order

(b) First order

(c) Second order

(d) Third order

72. A reversible liquid phase endothermic reaction is to be carried out in a plug flow reactor. For minimum reactor volume, it should be operated such that, temperature along the length will

(a) Decrease

(b) Increase

(c) Be at the highest allowable temperature throughout

(d) First increases and then decreases

73. A plug flow reactor is characterized by

(a) Presence of axial mixing

(b) High capacity

(c) Constant concentration throughout the reactor

(d) Presence of lateral mixing

74. Which one of the following order reaction is independent of initial concentration?

(a) $t\frac{1}{2}$ of third order reaction

(b) $t\frac{1}{2}$ of second order reaction

(c) $t\frac{1}{2}$ of first order reaction

(d) $t\frac{1}{2}$ of fourth order reaction

75. For the process of continuous constant-pressure combustion of a fuel with oxygen taking place in a well insulated space

(a) $Q = \Delta H$

(b) $Q < \Delta H$

(c) $Q > \Delta H$

(d) $Q = \Delta H = 0$

76. Which one of the following is slow, low temperature and flameless form of combustion sustained by the heat evolved when oxygen directly affects the surface of a condensed-phase fuel?

(a) Pyrolysis

(b) Turbulence

(c) Quenching

(d) Smoldering

77. The gross and net calorific values of a fuel will be the same:

(a) If its ash content is zero

(b) If its carbon content is low

(c) If its hydrogen content is zero

(d) Under no circumstances

78. Which one of the following is the correct sequence in increasing order for knocking tendencies?

(a) Naphthalene < isooctane < n-octane

(b) Isooctane < Naphthalene < n-octane

(c) Naphthalene < n-octane < isooctane

(d) Isooctane < n-octane< Naphthalene

79. Consider the following combustion reaction of cycloalkanes:

$$(CH_2)_n + \frac{3\,n}{2}\ O_2 \rightarrow nCO_2 + nH_2O + Heat$$

What is the correct order of heat energy liberated per mole for complete combustion of cycloalkanes with variation of n?

(a) $n = 3 > n = 4 > n = 5 > n = 6$

(b) $n = 6 > n = 4 > n = 5 > n = 3$

(c) $n = 3 \approx n = 4 > n = 5 > n = 6$

(d) $n = 6 > n = 4 > n = 5 \approx n = 3$

80. Which of the following metals have poor affinity for oxygen than iron, and cannot be removed through oxidation and hence they must be controlled by introducing pig iron?

(a) Ni and Cu

(b) Ca and Cr

(c) Ni and Cr

(d) Ca and Mg

81. In which one of the following molecules, a bond having significant non-bonding ionic quality exists?

(a) Hypervalent molecules

(b) Multivalent molecules

(c) Divalent molecules

(d) Monovalent molecules

82. Which one of the following constituents of cement possesses least setting time?

(a) $3\ CaO \cdot Al_2O_3$

(b) $2\ CaO \cdot SiO_2$

(c) $3\ CaO \cdot SiO_2$

(d) $2\ CaO \cdot Al_2O_3 \cdot Fe_2O_3$

83. Bernoulli's equation for fluid flow describes

(a) Kinetic energy balance in laminar flow

(b) Mechanical energy balance in potential flow

(c) Mechanical energy balance in turbulent flow

(d) Kinetic energy balance in boundary layer

84. Which one of the following pumps can be used for pumping slurry?

(a) Centrifugal

(b) Diaphragm

(c) Reciprocating

(d) Pneumatic

85. The working principle of the radiation pyrometer is based on

(a) Wien's law

(b) Kirchhoff's law

(c) Stefan-Boltzmann law

(d) Seebeck effect

86. Which one of the following pumps can be used for the recirculation of molten sodium coolant in liquid metal cooled reactor?

(a) Electromagnetic

(b) Reciprocating

(c) Centrifugal

(d) Volute

87. How much enrichment of $^{235}_{92}U$ is required in a fast breeder reactor nuclear fuel?

(a) 0 %

(b) 25 %

(c) 50 %

(d) 100 %

88. The graphite rod in the nuclear pile

(a) Converts fast moving neutrons into thermal neutrons

(b) Reacts with $^{235}_{92}U$ to release energy

(c) Furnishes deuterons to fission $^{238}_{92}U$

(d) Undergoes combustion which triggers the fission reactions

89. Which of the following are responsible for the bulk of the long-term radioactivity?

(a) U, Pu and Cm

(b) Ac, Th and Cf

(c) U, Pu and Ra

(d) U, Th and Pu

90. Which one of the following statement is correct?

(a) Positron is the antiparticle of electron

(b) In α-decay, the ratio of neutron to proton decreases

(c) Ionizing power of β-rays is higher than that of α-rays

(d) Speed of α-rays is more than that of γ-rays

91. Which one of the following is used to measure the rate of nuclear disintegration?

(a) Geiger-Muller counter

(b) Cyclotron

(c) NMR spectroscopy

(d) Mass spectrograph

92. Which one of the following furnaces is used to reduce iron ore to pig- iron?

(a) Puddling furnace

(b) Open-hearth furnace

(c) Blast furnace

(d) Reheating furnace

93. Which one of the following furnaces separates the material from the hot gases during metallurgy?

(a) Blast furnace

(b) Retort furnace

(c) Reverberatory furnace

(d) Open-hearth furnace

94. Specific heating capacity of a furnace is expressed as

(a) Weight heated / hr / furnace area

(b) Weight heated / furnace volume

(c) Weight heated / hr / furnace volume

(d) Furnace area / Weight heated

95. Heruth furnace is an electric furnace for manufacture of very fine steel. Which of the following statements are correct?

1. It has a steel shell lined inside with basic lining of dolomite or magnesite
2. It has movable water-jacketed electrodes
3. The charge consists of scrap steel, cast iron and iron ore
4. The steel obtained is free from S but there are few gas bubbles

(a) 1, 2 and 4

(b) 1, 3 and 4

(c) 2, 3 and 4

(d) 1, 2 and 3

96. Buna – S is a co-polymer of

(a) Butadiene and acrylonitrile

(b) Butadiene and ethylene

(c) Vinyl chloride and vinyl alcohol

(d) Butadiene and styrene

97. Which of the following are condensation polymers?

1. Teflon
2. Dacron
3. Nylon
4. Bakelite

(a) 2, 3 and 4

(b) 1, 2 and 3

(c) 1, 2 and 4

(d) 1, 3 and 4

98. Which one of the following corrosions occurs when two dissimilar metals are in electrical contact with each other and exposed to electrolyte?

(a) Galvanic corrosion

(b) Oxidation corrosion

(c) Inter granular corrosion

(d) Liquid metal corrosion

99. Which one of the following corrosion occurs due to concentration difference in a component?

(a) Uniform

(b) Galvanic

(c) Inter-granular

(d) Exfoliation

100. Corrosion which is limited to extremely narrow zone adjacent to the weld is known as:

(a) Pitting corrosion

(b) Knife-line attack

(c) Stress corrosion

(d) Crevice attack